

lines; no attempt has been made to illustrate their characters or their different intensities. The stellar lines are generally nebulous, resembling the solar line H; in the first four stars on the diagram they are, however, much more diffused on the side opposite to the red end of the spectrum.

Since these observations were communicated to the Society two more lines have been detected in the spectrum of *Arcturus*; one coincident with solar D, the other between it and solar C.

G. B. A.

Lines in the Solar Spectrum, as observed in the Balloon Ascent, 31st March last. By J. Glaisher, Esq. F.R.S.

The Astronomer Royal lent me the same apparatus as was used by Professor Smyth on the Peak of Teneriffe, for the purpose of observing the black lines in the spectrum. It consists of a prism, a fine adjustable slit placed in the focus of an object-glass of 14 inches focal length, and a telescope of the same length directed to the prism. No angular measure was contemplated, only eye observations and comparison of differences in the spectrum seen on the earth and at different distances from it in the course of the journey.

On the earth before leaving, a careful examination of the sky spectrum showed B as the limit of the red end, and some distance beyond G as that of the violet end, and all the principal lines.

The balloon left the earth on March 31, at a quarter past four P.M. At the height of half-a-mile the spectrum showed a general correspondence with that seen before starting, but I thought that G was less distinct and B was certainly less so.

At the height of a mile the spectrum was bright, but was shorter both at the red and violet ends, G was quite the limit, B was not visible, and C was doubtful.

At the height of two miles G was entirely lost, I could see F and D, but not beyond.

At the height of three miles the spectrum was very short, I could see a little beyond D to E, F was quite lost.

At the height of four miles I could see a little yellow tinge, but no lines.

At the height of four and a half miles I had no spectrum at all, even with a very open slit.

All those spectra were from the sky at an elevation of 60° ; as far as time permitted I looked at a horizontal spectrum, and I did not see any marked difference between it and the spectrum at the higher elevation, at the same time. The general results

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of these experiments are, that no line was lost from the spectrum, except through the loss of the spectrum itself, and that the spectrum shortened with increase of elevation.

The shortening of the spectrum with increase of elevation may have been, and most likely was, owing to want of light, (although to my senses there was abundance), the sky was of a deep dark blue, the sun was low, and it is possible the light was insufficient. For this class of observations it will be necessary to have a morning or mid-day ascent, for comparison of results with the preceding as well as to determine whether really the spectrum shortens with elevation or not.

Results of the Meridional Observations of Small Planets; Occultations of Stars by the Moon; and Phenomena of Jupiter's Satellites; observed at the Royal Observatory, Greenwich, in the months of February and March, 1863.

(Communicated by the Astronomer Royal.)

Astræa (5).

Mean Solar Time of Observation.				R. A. from Observation.			N.P.D. from Observation.			
		h	m	s	h	m	s	°	'	"
1863, Feb.	3	13	23	41.3	10	18	33.47	78	57	20.09
	12	12	41	48.1	10	12	2.42	77	44	56.16
	13	12	37	5.1	10	11	15.20	77	36	35.35
	16	12	22	53.7	10	8	51.07	77	11	32.87
	21	11	59	11.7	10	4	48.03	76	30	14.05
	27	11	30	55.5	10	0	6.47	75	43	7.56
	28	11	26	15.0	9	59	21.72	75	35	41.74
Mar.	3	11	12	19.1	9	57	13.25	75	14	10.08
	4	11	7	42.5	9	56	32.37	75	7	17.41
	11	10	36	1.6	9	52	22.20	74	24	7.20
	16	10	14	8.0	9	50	7.74	73	59	2.40
	17	10	9	50.2	9	49	45.77	73	54	41.46
	21	9	52	57.5	9	48	36.48	73	39	18.79
	23	9	44	42.1	9	48	12.83	73	32	56.47
	24	9	40	37.0	9	48	3.63	73	30	6.51
	25	9	36	34.1	9	47	56.65	73	27	27.25
	26	9	32	32.8	9	47	51.26	73	25	0.76
	27	9	28	33.7	9	47	48.07	73	22	49.03
	31	9	12	55.6	9	47	53.61	73	16	6.62